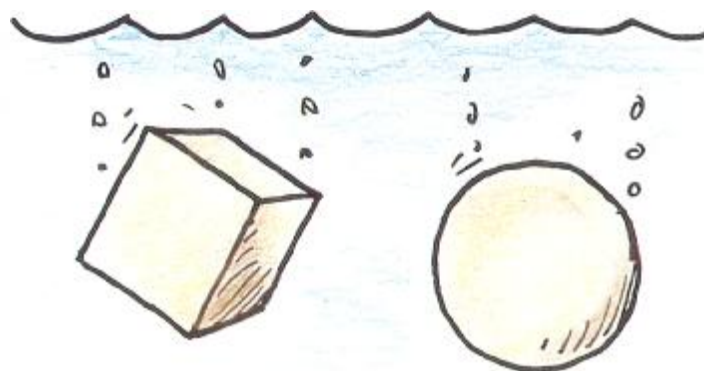


## NEXT-TIME QUESTION

Consider a solid brass cube and a solid brass sphere that have *equal surface areas*. When both are completely submerged in water, the one experiencing the greater buoyant force is the

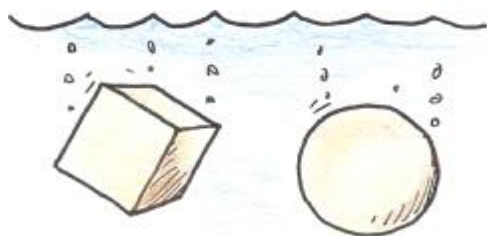
- a) cube.
- b) sphere.
- c) ... both the same.
- d) ... not enough information to say.



A blend of geometry and physics!



# NEXT-TIME QUESTION



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Answer: b, sphere

A sphere confines the largest possible volume within a given surface area. Buoyant force is equal to the weight of displaced water, and the greater-volume sphere displaces a greater volume, and hence greater weight of water than the cube. So the sphere experiences the greater buoyant force.



The cube is made of less brass, has less volume, and experiences less buoyant force.

The surface areas of soap bubbles and water drops are minimized by surface tension. Similarly, the surface areas of stars and planetary bodies are minimized by gravitational forces pulling matter inward. A sphere is the shape of minimum surface area for any substance.



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